



# SmartSettia

SmartSettia provides  
remote monitoring and  
control of poinsettia  
covering systems using  
mobile devices.

# Our Team



**Robert Breckenridge**

COMPUTER SCIENCE



**Brandon Jank**

COMPUTER SCIENCE



**Nick Krenowicz**

COMPUTER ENGINEERING

- ▶ Sponsor: Dev Shreshtha and Bob Tripepi
- ▶ Advisor: Bruce Bolden

# The Photoperiod Problem

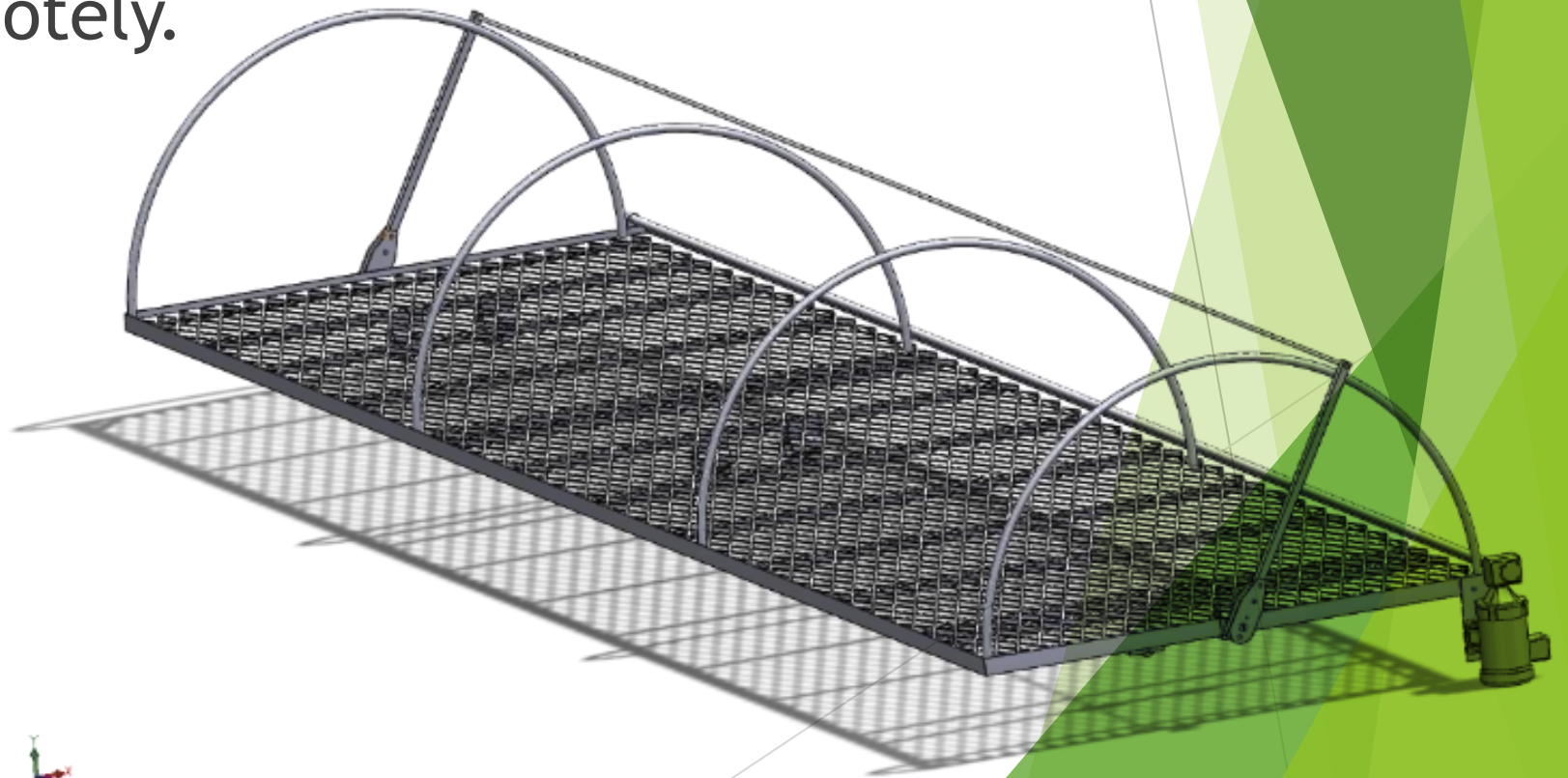
- ▶ Controlling photoperiod (and night temperature) is essential in precise programming of poinsettia market date and final height.
- ▶ The Sixth Street Greenhouse has streetlamps as well as internal lighting that invades the room where the poinsettias are stored.
- ▶ To mitigate the effect of this stray light, the students of the Plant & Soils Science Club have to manually cover and uncover the poinsettias every day.



(image © P. Allen Hammer, Purdue University)

# Limitations of the Old System

- ▶ No feedback for if system is open or closed.
- ▶ Unable to change covering schedule.
- ▶ No notifications of failure.
- ▶ Cannot control remotely.





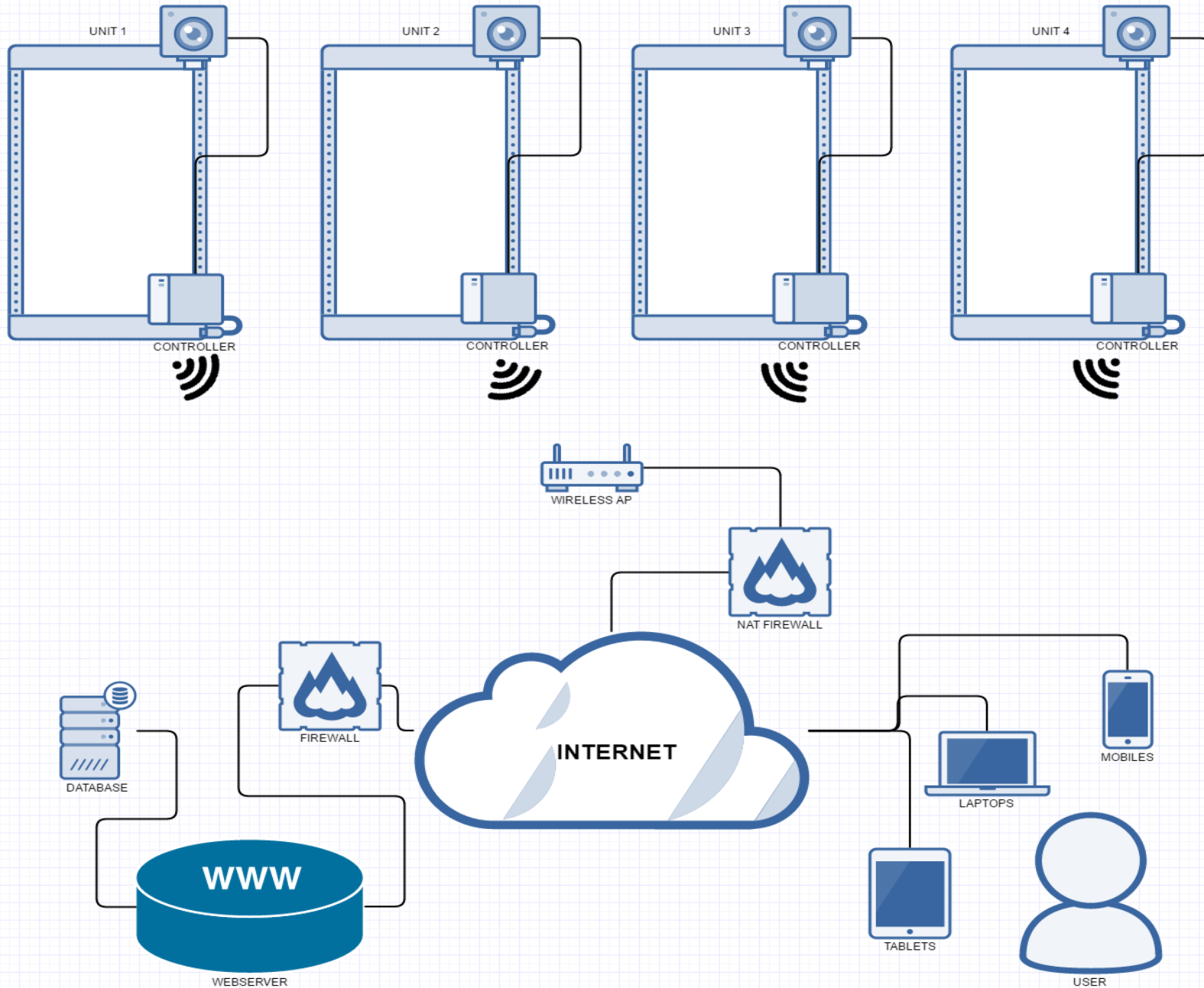
# Design Goals

In addition to automatically covering plants, the system must:

- ▶ Be simple to use on both mobile and desktop devices.
- ▶ Have a way to visually confirm if open or closed.
- ▶ Text notifications in the event of failure.
- ▶ Allow for a custom schedule.
- ▶ Log all actions and sensors.
- ▶ Operate in a hot and humid environment.

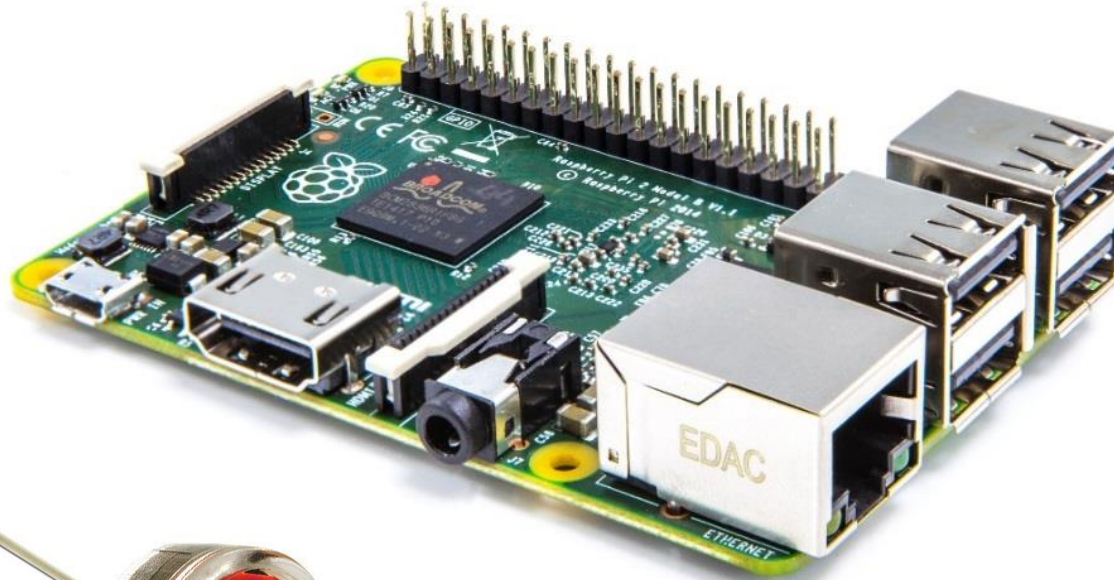
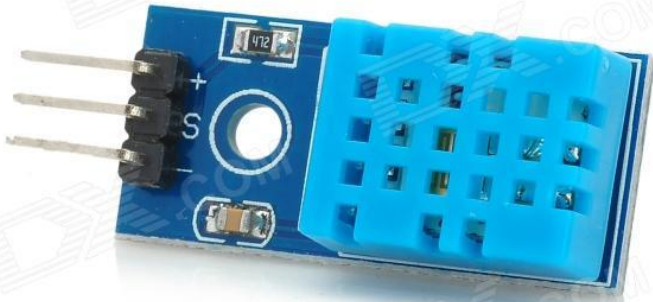


# System Design



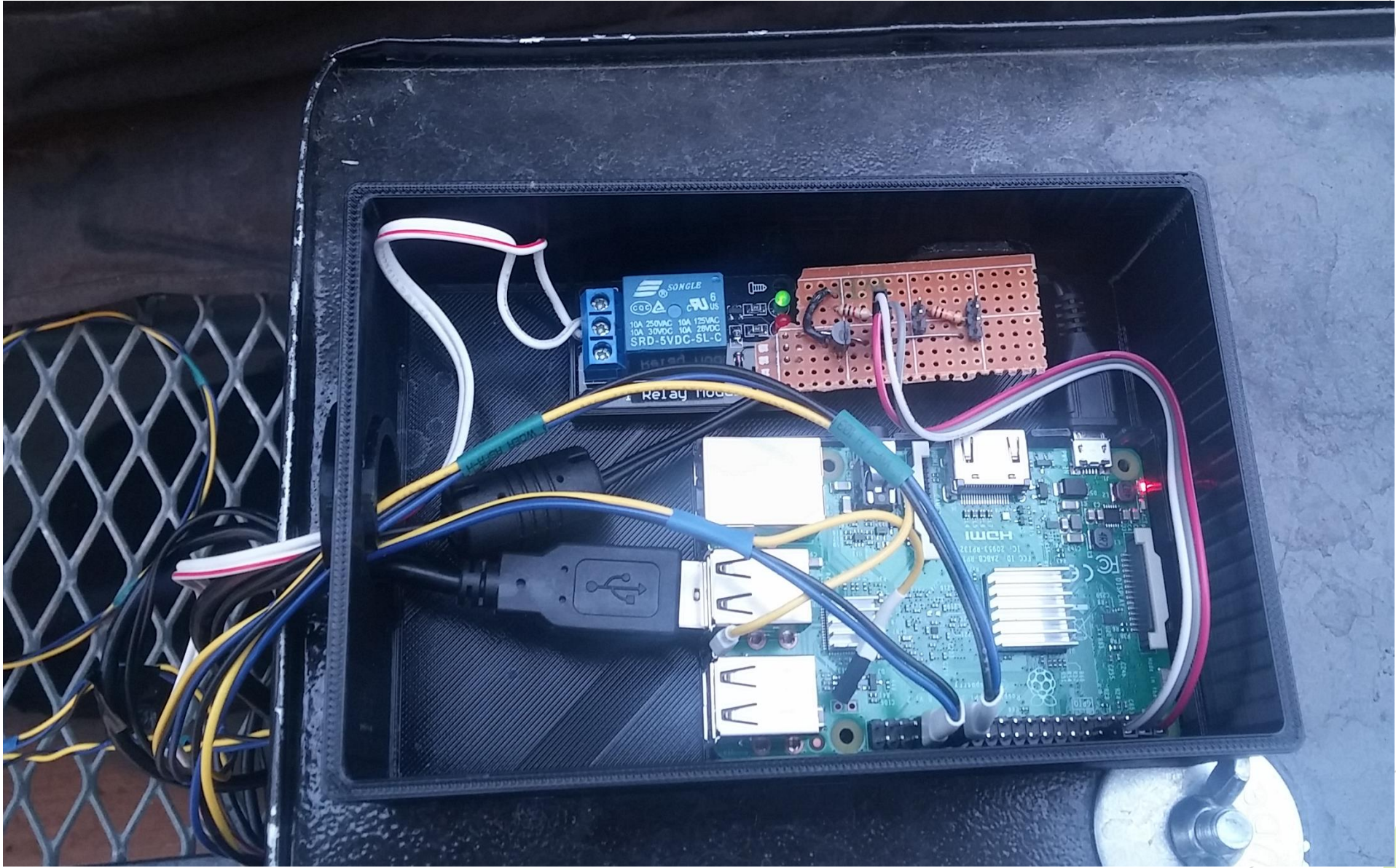
# Hardware Implementation

ELP



Raspberry Pi 3 Model B







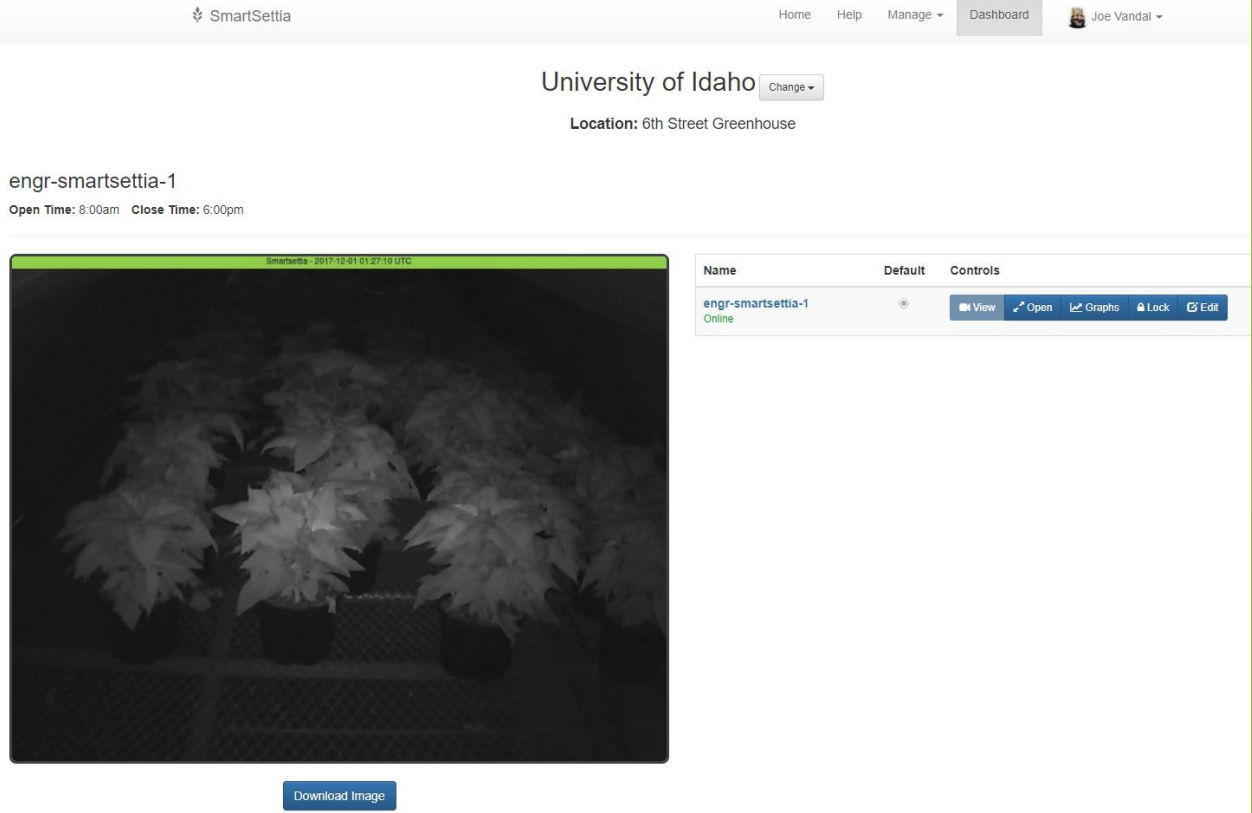
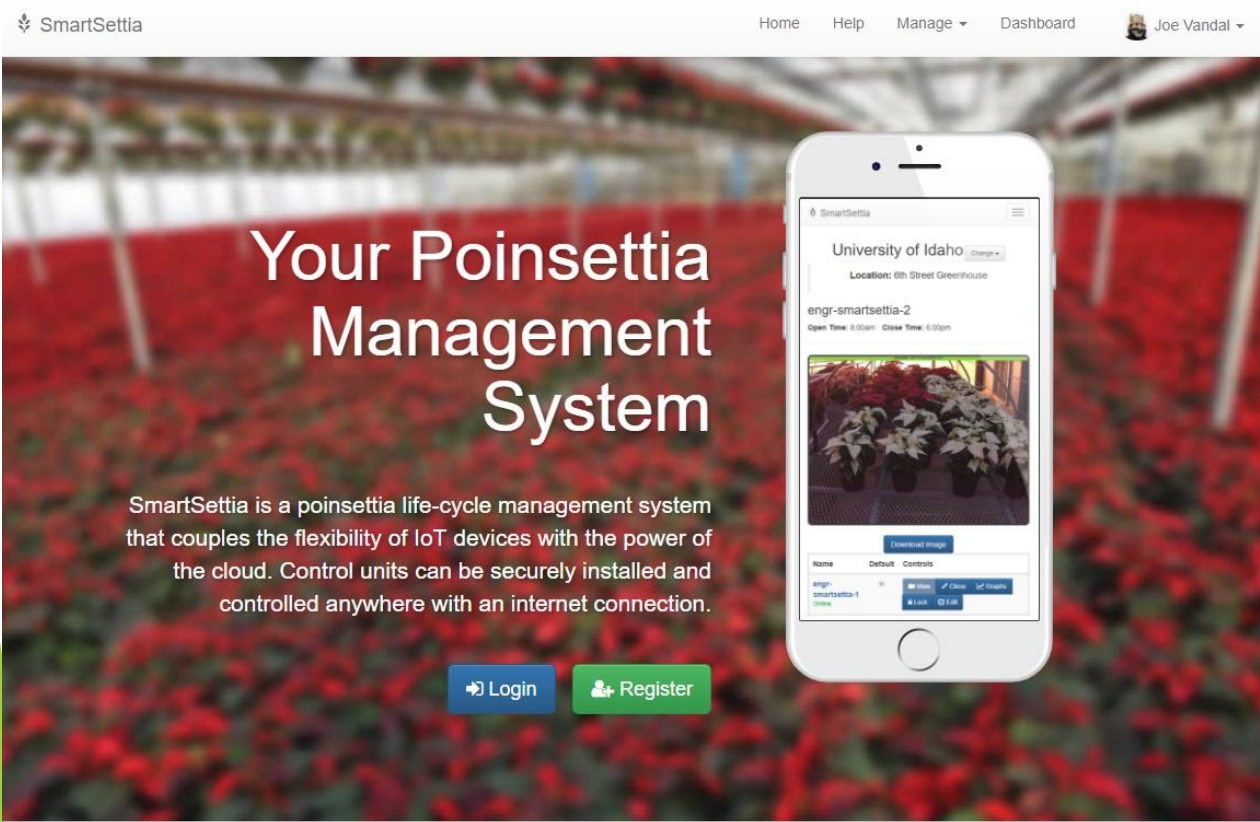


# Technology Stack





# Website



## Plant People Love It!

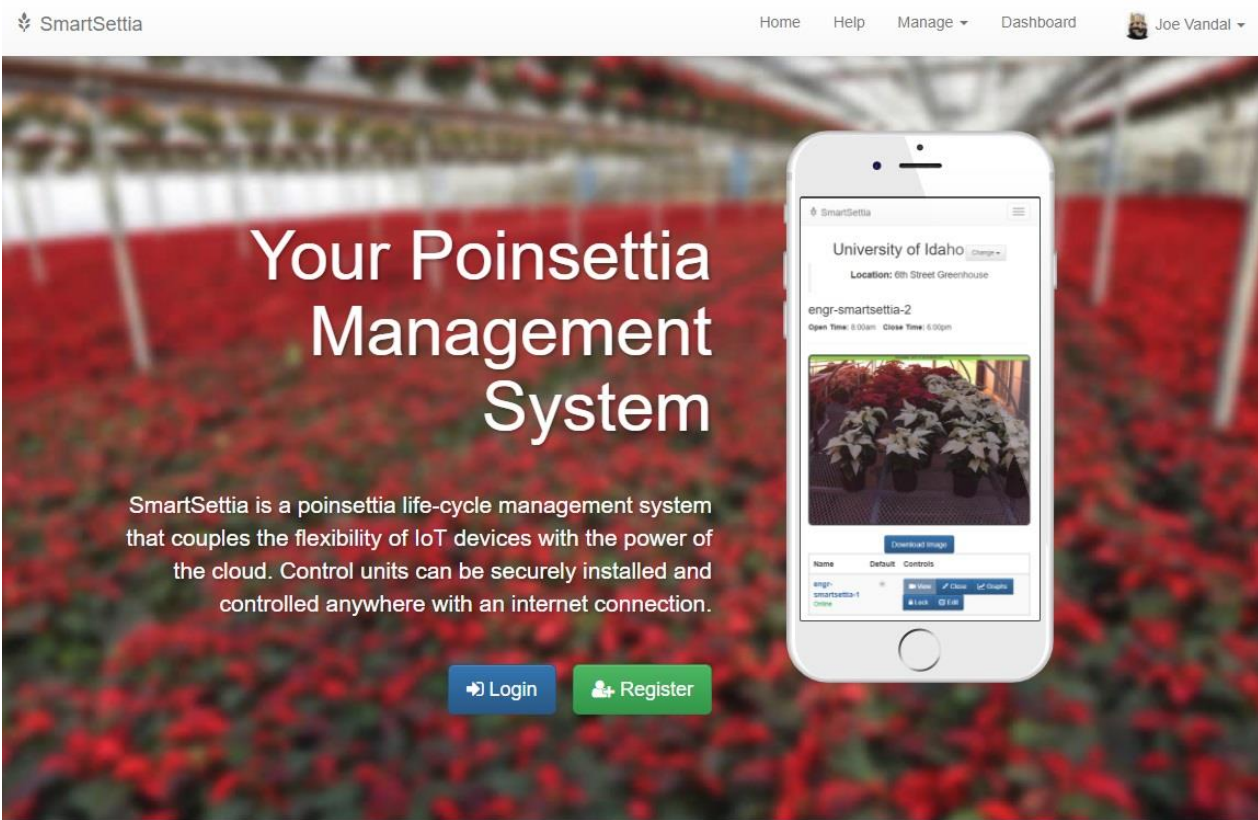
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— Famous plant-human hybrid



# Benefits of the New System

- ▶ The ability to monitor and control remotely save trips to the greenhouse.
- ▶ Increases caretaker productivity by allowing them to keep track of things from a mobile device anytime and anywhere.
- ▶ Saves money and reduces risk by detecting and reporting problems early on.



The image shows a screenshot of the SmartSettia web application interface. The background is a blurred image of a greenhouse filled with red poinsettias. The interface includes a header with the SmartSettia logo and navigation links: Home, Help, Manage, and Dashboard. A user profile for Joe Vandal is visible in the top right corner. The main content area features the title "Your Poinsettia Management System" and a description: "SmartSettia is a poinsettia life-cycle management system that couples the flexibility of IoT devices with the power of the cloud. Control units can be securely installed and controlled anywhere with an internet connection." Below this description are "Login" and "Register" buttons. On the right side, there is a smartphone displaying the mobile version of the app. The app interface shows the location "University of Idaho", "Location: 6th Street Greenhouse", and a specific control unit "engr-smartsettia-2" with its open and close times. Below the phone, there is a quote: "Plant People Love It!" followed by a placeholder text "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante." and the attribution "— Famous plant-human hybrid".

SmartSettia

Home Help Manage Dashboard Joe Vandal

## Your Poinsettia Management System

SmartSettia is a poinsettia life-cycle management system that couples the flexibility of IoT devices with the power of the cloud. Control units can be securely installed and controlled anywhere with an internet connection.

Login Register

Plant People Love It!

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.

— Famous plant-human hybrid

# Questions and Feedback

“Tell us what  
you think!”



- ▶ Thank you for attending our technical presentation!
- ▶ We welcome any questions or feedback you can provide.
- ▶ You can also e-mail the SmartSettia team at:
  - ▶ [engr-smartsettia@uidaho.edu](mailto:engr-smartsettia@uidaho.edu)